

BACKGROUND

Sleep duration and timing are critical to cognitive and physical performance. Moreover, disrupted sleep negatively affects function. Poor sleep is a common sequelae of traumatic brain injury and can lead to cognitive and behavioral impairments. While melatonin and trazodone are commonly used in insomnia, studies on their effectiveness in traumatic brain injury have been mixed and limited. It has been theorized that trazodone may have a role for agitation due to its serotonergic effects, but studies have been inconclusive.

OBJECTIVE

To assess whether traumatic brain injury patients prescribed trazodone, melatonin or no medication for 7 days consecutively demonstrated greater FIM gains/efficiency, longer hours slept, and/or improved Agitation Behavior Scale scores.

METHODS

This is a retrospective chart review of traumatic brain injury patients on an acute inpatient brain injury rehabilitation unit who were prescribed trazodone, melatonin, or no medication for 7 days consecutively. One missed day was allowed.

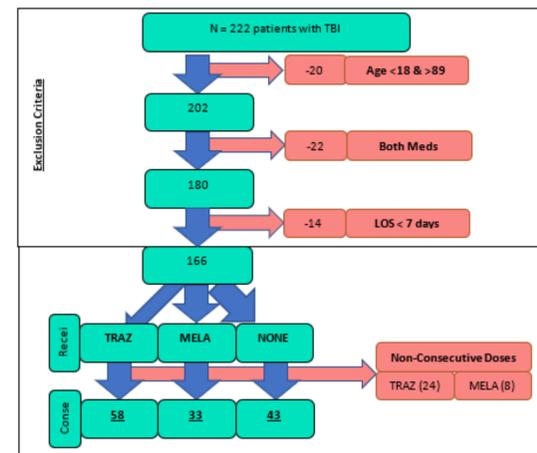


Table 1: Demographics	Melatonin (n = 33)	Trazodone (n = 58)
Age, years	51.5 (18-82)	49.9 (19-83)
Female	9 (27%)	17 (29%)
Race		
Caucasian	26 (79%)	47 (81%)
Black	5 (15%)	8 (14%)
Other	2 (6%)	3 (5%)
Marital Status		
Single	12 (36%)	32 (55%)
Married	14 (42%)	14 (24%)
Divorced/Separated	5 (15%)	2 (3%)
Other/Unknown	2 (6%)	10 (17%)
GCS	10.3 (3-15)	10.5 (3-15)
Acute Hospital LOS, days	16.4 (2-54)	12.1 (2-34)

OUTCOME MEASURES

1. Total FIM and FIM efficiency from day 1 to day 7
2. Agitated Behavior Scale (ABS) assessed three times per day. The mean of these values were used in the analysis.
3. Sleep hours per night

RESULTS

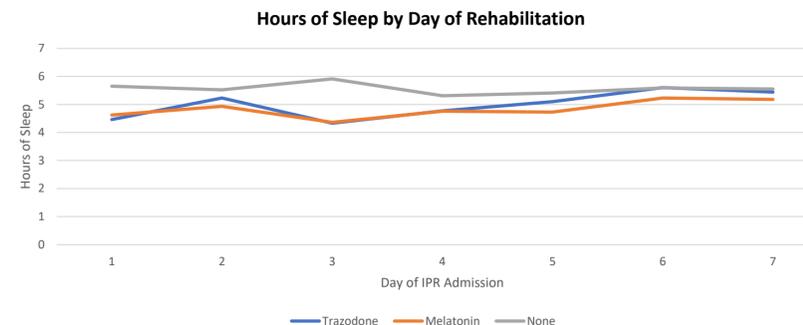


Figure 1: Mean hours of sleep per night during days 1-7 of inpatient rehabilitation admission

- No statistically significant between-group difference in sleep hours based on medication. (95% CI -0.25 – 1.28; F=0.87, p=0.18)
- There was statistically significant within group difference in sleep hours over time. (p<0.0001)

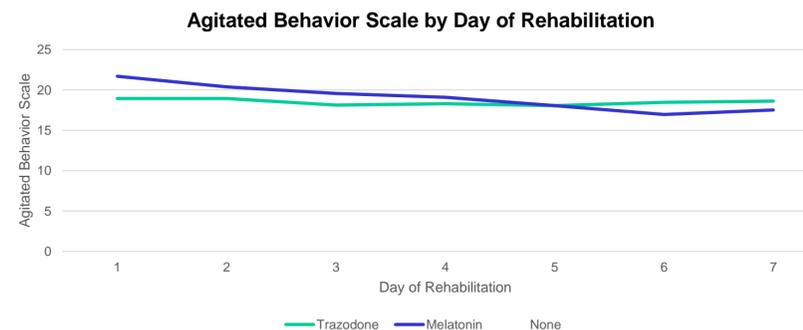


Figure 2: Mean ABS per day during days 1-7 of inpatient rehabilitation admission

- No statistically significant difference in ABS between groups were seen. However, at day 7, there is a 0.1622 difference in ABS favoring trazodone. (95% CI -2.59 – 2.27; F=0.98, p=0.90)

REFERENCES

1. Larson EB, Zollman FS. The effect of sleep medications on cognitive recovery from traumatic brain injury. The Journal of head trauma rehabilitation 2010; 25(1):61-67.
2. Orff HJ, et al. Traumatic brain injury and sleep disturbance: a review of current research. The Journal of head trauma rehabilitation 2009;24(3):155-165.
3. Ouellet MC, et al. Sleep-wake disturbance after traumatic brain injury. The Lancet neurology 2015;14(7):746-757.

Results continued:

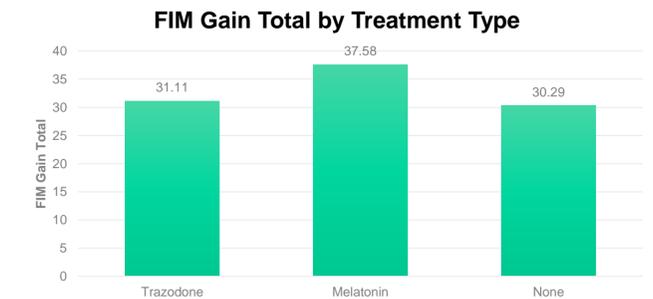


Figure 3: Mean FIM gain during inpatient rehabilitation admission

- There was a statistically significant difference in Total FIM gain between the groups. (95% CI 4.38 – 8.74; F=34.94, p<0.0001)

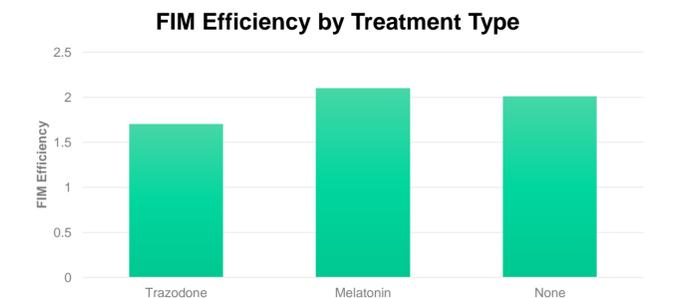


Figure 4: Mean FIM efficiency during inpatient rehabilitation admission

- There was a statistically significant difference in FIM efficiency between the groups. (95% CI 0.22 – 0.51; F=23.64, p<0.0001)

CONCLUSION

During the first week of inpatient rehabilitation, melatonin showed greater improvements in Total FIM gains and FIM efficiency over trazodone. Unfortunately, this difference cannot be explained fully and will require further study.

In addition, no difference between groups was seen in ABS and hours slept during the first week of inpatient rehabilitation. However, there was a difference seen within groups in hours slept with melatonin showing the greater improvements in sleep from Day 1 to Day 7.

